The authors summarized their work as follows:

Under conditions precluding the possibility of infection by dejecta it was found that two species of rat fleas, *Xenopsylla cheopis* and *Ceratophyllus fasciatus*, fed upon septicemic blood, can transmit plague during the act of sucking, and that certain individuals suffering from a temporary obstruction at the entrance to the stomach were responsible for most of the infections obtained, and probably for all.

In a proportion of infected fleas the development of the bacilli was found to take place to such an extent as to occlude the alimentary canal at the entrance to the stomach. The culture of pest appears to start in the intercellular recesses of the proventriculus and grows so abundantly as to choke this organ and extend into the esophagus. Fleas in this condition are not prevented from sucking blood as the pump is in the pharynx, but they only succeed in distending an already contaminated esophagus, and, on the cessation of the pumping act, some of the blood is forced back into the wound. Such fleas are persistent in their endeavors to feed, and this renders them particularly dangerous. Fleas suffering from obstruction do not necessarily perish, and in course of some days the culture obliterating the lumen of the proventriculus may autolyse an the passage again become pervious. They are, however, incapable for the time being of imbibing fresh fluid, and are, therefore, in danger of drying up if the temperature is high and the degree of saturation of the atmosphere low. Although, as far as our observations go, they withstand desiccation quite as well as normal fleas which are not fed, their length of life must be short directly hot, dry weather sets in, and we are led to wonder whether this fact may not, to some extent, explain why in India epidemic plague is confined to the cooler and moister seasons, and particularly why in Northern and Central India the epidemics are abruptly terminated on the onset of the hot, dry weather.

## MORBIDITY REPORTS IN LOUISIANA.

An amendment was made to the Sanitary Code of Louisiana April 24, 1914, requiring physicians to report cases of notifiable diseases both to the State health officer and to the local board of health. These reports are to be made within 24 hours. The requirement insures that both the local and State health departments will receive prompt notice of cases and at all times have current information of the prevalence and geographic distribution of the controllable diseases.

Requiring reports to be made to both the local and State health departments is not at present a common practice in this country. It seems, however, to be necessary in States in which adequate provision has not been made for efficient local health officers under the control and supervision of the State health department.

## SANITATION MISAPPLIED.

By ARTHUR M. STIMSON, Passed Assistant Surgeon, United States Public Health Service.

A popular reflection of the activities in recent years along public health lines is seen in the public exploitation of the adjective "sanitary." At every turn we encounter "sanitary" groceries, bakeries,

restaurants, barber shops, etc., so labeled, while glaring advertisements inform us that such and such clothing, food, or appliance is strictly "sanitary." In so far as this condition implies an active interest on the part of the public in the preservation of its health, it is a hopeful sign, and we must admit that the modern advertising agency has on the whole a very accurate estimate of public interest. So much the better if the advertised sanitary properties or facilities materialize on investigation, and it is a pleasure to acknowledge that certain commercial enterprises are offering to the public and to their employees conditions and products which mark a real progress in the prevention of disease.

On the other hand, where the sanitary influence exists in name only or by implication in the presence of some "sanitary-looking" mysterious apparatus or exterior it too frequently occurs that a false sense of security is indulged in by the user, and quite possibly to his detriment. An example of the latter condition is observed in the ignorant use or rather misuse of disinfectants and deodorants. Disinfectants have their proper uses and are indispensable under some circumstances, notably in rendering the body waste products harmless at the bedside of persons sick with certain communicable diseases. Deodorants, however, are of questionable value and may even conceal a menace, since they at best absorb or neutralize an odor which may indicate the presence of some harmful substance which ought to be disposed of, and at worst merely substitute a stronger and perhaps less disagreeable odor, without in either case having destroyed the dangerous substance whose presence they hide. The same is true where disinfectants, although good in themselves, are so misapplied as not to effectively attack the dangerous substance. For example, certain "disinfectant" and "deodorant" appliances may be frequently seen in public toilets in hotels, railway cars, etc., which occasionally add a drop or so of "disinfectant" (possibly good in itself) to the pan or bowl, and undeniably add a very strong and frequently unpleasant odor to the apartment.

Where these appliances are superimposed upon modern satisfactory plumbing and a water carriage system of disposal they are manifestly superfluous, and where they are used in connection with a pan closet, as in railway carriages, they are ineffectual, since there is no possibility of their contents being thoroughly mixed with the dejecta in amounts adequate to accomplish any good. Moreover the manner of their installation is such that in some instances offensive and possibly dangerous material, which would otherwise have been washed away, accumulates on the delivery pipe of the apparatus where no disinfectant can reach it, but where flies may have ready access to it. In spite of their lack of real efficiency, great potency seems to be ascribed to these concerns, since a poor type of toilet fixture and a lack of

mechanical cleanliness in the apartment depend for excuse upon their presence.

A word about dirt and mechanical cleanliness. "Dirt" means various things to the housewife, the sanitarian, the surgeon, the chemist, and the bacteriologist, depending on its composition and location. A surgeon might operate successfully in a room which a housewife considered untidy, but not with a knife which she would pass as clean. A bacteriologist might carry out successful research in a cellar which a dainty housewife would hesitate to enter, but not by using glassware cleaned by her methods. The sanitarian must appreciate the various standpoints from which "dirt" is viewed, and must balance that cleanliness which is practical against what is theoretically desirable. But if his viewpoint is sufficiently inclusive, he will contend that grossly visible dirt, in the sense of the housewife, is always prejudical to sanitary conditions. Even if the dirt does not of itself contain disease germs, its presence conduces to practices which are menaces to health. Promiscuous spitting on the floor is admittedly a dangerous practice. Will a person (capable of doing it at all) be more apt to spit on the floor of a neat apartment or on that of a dirty, ill-kept one? Will householders be more apt to dump rubbish and filth on the muddy banks of a black, foul-smelling stream, or on the grassy slopes of a clear and wholesome river? There are incorrigibles, it is true, with whom the law must deal, but the general run of our citizens are susceptible to their surroundings, and respond to a neat, well-cared for environment, by improving their habits and practices, and incidentally their sanitary condition as a body.

It behooves those who are concerned with the handling and accommodation of employees and patrons, especially in large numbers, to subject the "sanitary" measures which they employ to the critical scrutiny of common sense, aided here and there at the technical points by expert information. Otherwise they are sure to lose in the end, to the advantage of more progressive competitors, and (since there is no reason to impute to the business man a disproportionate lack of the altruistic impulse) they will be missing a great opportunity for inculcating the lessons of genuine sanitation.

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## PURE DRUGS AND THE PUBLIC HEALTH.

By MARTIN I. WILBERT, Assistant in Pharmacology, Hygienic Laboratory, United States Public Health Service.

Food and drug laws are generally recognized as being economic measures designed to prevent dishonest practices or gross adulteration and thereby secure to the purchaser an equitable return and the assurance that the food or drug product purchased will be true to